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Focal onset non-motor seizure following COVID-19 vaccination: A mere coincidence?

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1. Introduction

As India runs its course to put an end to coronavirus infectious disease of 2019 (COVID-19) with the world's largest vaccination drive with both the Covishield (AZD1222) and Covaxin (BBV152), concerns have been raised regarding long-term benefits and possible neurological complications [1,2]. We hereby report a case of focal onset seizure with transient episodic behavioral abnormalities following the first dose of COVID-19 vaccination.

2. Case presentation

A 68-year-old man from rural India without comorbidities except well-controlled arterial hypertension (on regular anti-hypertensives, i.e. losartan 50 mg/day and amlodipine 5 mg/day) presented with history of sudden onset impaired consciousness for a period of about 2–3 minutes as stated by his wife and son. Family

history and history of illicit drug use was non-contributory. This event occurred four days after he received the first dose of Covishield vaccine. On detailed enquiry, his family members said that after receiving it, he had transient muscle aches and feverish sensation that subsided within one day without medications. That morning (day of event), the patient went to bathroom and forgot to lock the door and after some time he came out of toilet completely naked and soiled with faeces. Then the person sat on sofa without cleaning himself. His wife was astonished with this bizarre behaviour, but he seemed to be in a "trance state" and without responding to any questions. Soon after, his wife noticed that he became unresponsive lying on the sofa and a "peculiar vocalization" was heard. This state persisted for near about 2–3 minutes after which he regained consciousness but was still disoriented to time, place and person. He went to sleep and slept for long 6–8 hours before waking up normal. For the next two days, he did normal activities, but his family members pointed out that he was inattentive and making frequent trivial mistakes. These problems abated within a week and he was living normal life for the next two weeks. Then he went to a local physician (R.G.) and a consultant neurologist (S.D.) regarding advice whether to take the next dose of

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vaccination when it is scheduled.

Physical, neurological and neurocognitive examinations were normal except the presence of essential tremors. Neither the patient nor does any of his family member suffered from any neuropsychiatric ailments. Brain MRI revealed mild periventricular leukoaraiosis (left > right) and generalized cortical atrophy (predominantly affecting posterior cortex, right > left). Inter-ictal EEG was normal, so was blood glucose, electrolytes, liver, thyroid and renal functions. He was diagnosed to be a case of focal and non-motor onset seizure with impaired awareness (first seizure of life) with marked transient behavioural abnormalities. He was prescribed brivaracetam 50 mg twice a day as subtle neuroimaging abnormalities were found. For the next four weeks of follow-up, no recurrence of symptoms occurred. He has been kept under close periodic follow-up and has been advised to report the incident to regional center for monitoring of adverse events following immunization, and to adhere strictly to the prescribed antiepileptic regimen even if he takes the second dose of vaccine. Besides, he was put on aspirin (75 mg/day) and atorvastatin (20 mg/day) as primordial and secondary prophylaxis for vascular events.

3. Discussion

Seizure, with or without fever, is a known serious adverse event following vaccinations [3]. Even though an immune basis is suspected, it is not entirely understood, and studies have rather pointed towards genetic and molecular evidence as causative factors [3,4]. In our patient, the epileptogenic focus might be found in the atrophic degenerated cortex and triggered upon getting the Covishield vaccine. Besides, appearance of seizure may be purely coincidental. Currently, there is no experimental data for focal seizures associated with COVID-19 vaccination and since this is the first report as per our knowledge, we would not draw a premature causal relationship between the two.

Although stringent surveillance for post-vaccination adverse

events are ongoing with utmost zeal, evidently, the vaccines available and recommended until date seem to be highly effective, safe and with mild transient adverse effects. However, in light of the few cases of neurological complications observed in vaccinated individuals [1], we deem it necessary that amidst this massive vaccination programme, it is important not to lose track of the vaccine recipients and to generate general awareness among the clinicians regarding rare, but possible adverse events. Furthermore, the recipients and their caregivers should also be notified to report any such incident, as monitoring of the evolving data is a necessity before arriving at conclusions [5].

Author contributions

All authors contributed significantly to the creation of this manuscript; each fulfilled criteria as established by the ICMJE.

Declaration of competing interest

The authors declare that they have no conflict of interest.

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